We claim:

1. A method of pre-treating a barrier metal layer of a partially finished integrated circuit device prior to the deposition of a copper film thereon, comprising the steps of:

providing a partially finished integrated circuit device including a barrier metal layer;

subjecting said barrier metal layer to a temperature greater than 200 degrees Celsius for at least thirty seconds to form a pre-treated barrier metal layer; and

depositing a copper film on said pre-treated barrier metal layer.

2. The method of claim 1 wherein said step of subjecting said barrier metal layer to a temperature comprises subjecting the barrier metal layer to a temperature in a range of 250 to 550 degrees Celsius.

3. The method of claim 1, prior to depositing said copper film on said pre-treated barrier metal layer, further comprising the step of subjecting said barrier metal layer to an atmosphere chosen from the group consisting of: an ambient vacuum, hydrogen gas, argon gas, and helium gas.

4. The method of claim 1, prior to depositing said copper film on said pre-treated barrier metal layer, further comprising the step of subjecting said barrier metal layer to a pressure in a range of 0.1 mTorr to 20 Torr.

5. The method of claim 1, wherein said barrier metal layer is subjected to a temperature greater than 200 degrees for 30 to 100 seconds.

6. The method of claim 1 wherein said barrier metal layer comprises a trench having a side wall, a bottom surface, and a width of 0.13μm or less, and wherein said copper film

is deposited by chemical vapor deposition throughout said trench and against said side wall and said bottom surface.

7. The method of claim 1 wherein said copper film deposited on said pre-treated barrier metal layer has adhesion properties such that said copper film remains adhered to said pre-treated barrier metal layer when said copper film is subjected to a tape test.

8. The method of claim 1 wherein said barrier metal layer is chosen from the group consisting of TiN and TaN.

9. A method of pre-treating a barrier metal layer of a partially finished integrated circuit device for the deposition of a copper film thereon, comprising the steps of:

providing a partially finished integrated circuit device including a barrier metal layer having a trench therein;

subjecting said barrier metal layer to a temperature greater than 200 degrees Celsius for at least thirty seconds in an atmosphere chosen from the group consisting of: an ambient vacuum, Hydrogen gas, Argon gas, and Helium gas to form a pre-treated barrier metal layer; and

thereafter depositing a copper film on said pre-treated barrier metal layer and throughout said trench.

10. The method of claim 9, simultaneous to subjecting said barrier metal layer to said atmosphere, further comprising the step of subjecting said barrier metal layer to a pressure in a range of 0.1 mTorr to 20 Torr.

11. The method of claim 9 wherein said trench has a width of 0.13μm or less.

12. The method of claim 9 wherein said copper film deposited on said pre-treated barrier metal layer has adhesion properties such that said copper film remains adhered to

said pre-treated barrier metal layer when said copper film is subjected to a tape test, and wherein said copper film has uniform properties there through.

13. An integrated circuit device manufactured by the method of claim 9.

14. An integrated circuit device manufactured by the process of:

providing a partially finished integrated circuit device including a barrier metal layer;

subjecting said barrier metal layer to a temperature greater than 200 degrees Celsius for at least thirty seconds; and

thereafter depositing a copper film on said barrier metal layer.

15. A integrated circuit according to claim 14, further manufactured by the process of, prior to depositing said copper film on said barrier metal layer, subjecting said barrier metal layer to a temperature in a range of 250 to 550 degrees Celsius.

16. A integrated circuit according to claim 14, further manufactured by the process of, prior to depositing said copper film on said barrier metal layer, subjecting said barrier metal layer to an atmosphere chosen from the group consisting of: an ambient vacuum, Hydrogen gas, Argon gas, and Helium gas.

17. A integrated circuit according to claim 14, further manufactured by the process of, prior to depositing said copper film on said barrier metal layer, subjecting said barrier metal layer to a pressure in a range of 0.1 mTorr to 20 Torr.

18. A integrated circuit according to claim 14, further manufactured by the process of, prior to depositing said copper film on said barrier metal layer, subjecting said barrier metal layer to a temperature greater than 200 degrees for 30 to 100 seconds.

19. A integrated circuit according to claim 14 wherein said barrier metal layer comprises a trench having a side wall, a bottom surface, and a width of 0.13μm or less, and wherein said copper film is deposited throughout said trench.

20. A integrated circuit according to claim 14 wherein said copper film deposited on said metal barrier layer has adhesion properties such that said copper film remains adhered to said barrier metal layer when said copper film is subjected to a tape test and wherein said barrier metal layer is chosen from the group consisting of TiN and TaN.